

REMARKS

Favorable reconsideration of this application, as presently amended and in light of the discussion, is respectfully requested.

Claims 6, 8-14 and 21-25 are currently pending. Claims 1-5, 7, and 15-20 have been canceled without prejudice; Claims 6 and 8-13 have been amended; and Claims 21-25 have been added by the present amendment. The changes to the claims are supported by the originally filed specification and do not add new matter.

In the outstanding Office Action, Claims 1-3, 5-7, 10-12, and 15-20 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,128,413 to Benamara (hereinafter “the ‘413 patent”); and Claims 4, 8, 9, 13, and 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the ‘413 patent in view of U.S. Patent No. 5,684,693 to Li (hereinafter “the ‘693 patent”).

Applicants respectfully submit that the rejection of Claims 1-5, 7, and 15-20 are rendered moot by the present cancellation of those claims. Further, Applicants respectfully submit that the rejections of the claims under 35 U.S.C. § 102 and 103 are rendered moot by the present cancellation of the independent claims and the addition of new Claim 21.

The present amendment sets forth new Claim 21 (and dependent Claims 22-25) for examination on the merits. Moreover, Claim 6 has been amended to depend from new Claim 21.

New Claim 21 is directed to a data compression system for compressing original times series data having a various waveform, comprising: (1) a compression unit configured to generate a compression code by compressed the original time series data without damaging characteristics of waveform information in the various waveform, the waveform information including a signal with a various change including one of a step-like signal change and a local signal average value; and (2) a transmitting unit configured to transmit the compression code

through a network. Further, new Claim 21 recites that the compression unit is configured to perform a wavelet transform to the original time series data by using transform coefficients to decompose the original time series data into a predetermined level number of component waveforms, each of the waveforms of each level having local peak value data, and to extract at least one of the local peak value data of the each of the component waveforms except for a low frequency of a final level. Further, amended Claim 1 recites that the compression code includes (1) the extracted local peak value data, (2) one of the component waveforms having the low frequency of the final level, (3) a mother wavelet function code, and (4) a number of decomposition levels. Finally, Claim 1 recites that the extracted local peak value data includes a peak value that is not less than a predetermined threshold value thereof and a position in a data-frame of each level thereof. New Claim 21 is supported by the originally filed specification and does not add new matter.¹

The '413 patent is directed to a method and apparatus for compressing data using a technique for quantization and encoding referred to as Mapping through Interval Refinement (MIR). Further, the '413 patent discloses that the discrete wavelet transform may be used to compress the data. However, Applicants respectfully submit that the '413 patent fails to disclose a compression unit that is configured to extract at least one of the local peak value data of each of the component waveforms except for a low frequency of a final level, as recited in new Claim 21. Further, Applicants respectfully submit that the '413 patent fails to disclose that the compression code includes the extracted local peak value data, one of the component waveforms having the low frequency of the final level, a mother wavelet function code, and the number of decomposition levels, as recited in new Claim 21. Accordingly, Applicants respectfully submit that amended Claim 21 patentably defines over the '413 patent.

¹ See, e.g., original Claims 1-5.

The '693 patent is directed to a data compression apparatus for use with a band-limited data transmission channel, which finds particular application in the drilling of oil wells. In particular, the '693 patent discloses means for transforming time series data into the wavelet domain, thresholding the wavelet coefficients, and transmitting the coefficients to a receiver. As shown in Figures 3 and 5, the '693 patent discloses a downhole processor 28 that includes a wavelet compression unit 56 that determines whether an absolute value for every wavelet coefficient $a(k)_n$ ($n=0, \dots, N$), including the low frequency of the final level, equals or exceeds the threshold value T or not. When the absolute value of the wavelet coefficient, including the low frequency of the final level, equals or exceeds the threshold value T , the wavelet coefficient is recorded in the data block 62.² Thus, the system disclosed by the '693 patent may cause data degradation by losing information at the lowest frequency. However, Applicants respectfully submit that the '693 patent fails to disclose a compression unit that extracts at least one of the local peak value data of each of the component waveforms except for a low frequency of a final level, as recited in new Claim 21. Moreover, Applicants respectfully submit that the '693 patent fails to disclose that the compression code generated by the compression unit includes the extracted local peak value data, one of the component waveforms having the low frequency of the final level, a mother wavelet function code, and the number of decomposition levels, as recited in new Claim 21. In particular, the '693 patent does not disclose that a mother wavelet function code is included in the compression code transmitted to the receiver. Rather, the '693 patent appears to disclose that the mother wavelet function is a fixed function and cannot be included in the compression code. Accordingly, Applicants respectfully submit that new Claim 21 (and all associated dependent claims) patentably define over the '693 patent.

² See, e.g., Figure 5 of the '693 patent.

Moreover, no matter how the teachings of the '413 and '693 patents are combined, the combination does not teach or suggest the compression unit recited in new Claim 21.

Accordingly, Applicants respectfully submit that new Claim 21 (and dependent Claims 6, 8-14 and 22-25) patentably define over any proper combination of the '413 and '693 patents.

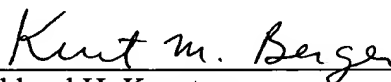
The present amendment also sets forth new dependent Claims 22-25 for examination on the merits. Applicants respectfully submit that new Claims 22-25 are supported by the originally filed specification and do not add new matter. Moreover, based on the asserted allowability of new Claim 21, Applicants respectfully submit that new Claims 22-25 patentably define over any proper combination of the '413 and '693 patents.

Thus, it is respectfully submitted that independent Claim 21 (and dependent Claims 6, 8-14, and 22-25) patentably define over any proper combination of the '413 and '693 patents.

Consequently, in view of the present amendment and in light of the above discussion, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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